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**SIGMA XI
QUARTERLY**

Vol. III

MARCH, 1915

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OFFICERS OF SIGMA XI

| | |
|----------------|--|
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| Secretary..... | HENRY B. WARD University of Illinois, Urbana, Illinois |
| Treasurer..... | JAMES F. KEMP Columbia University, New York City |

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| | |
|--------------------------|---|
| J. McKEEN CATTELL..... | Columbia University, Garrison-on-Hudson, N. Y. <i>Term expires January, 1916</i> |
| JULIUS STIEGLITZ..... | University of Chicago, Chicago, Ill. <i>Term expires January, 1917</i> |
| DEXTER S. KIMBALL..... | Cornell University, Ithaca, N. Y. <i>Term expires January, 1918</i> |
| EDWARD ORTON, JR. | Ohio State University, Columbus, Ohio. <i>Term expires January, 1919</i> |
| CLARENCE E. McCLUNG..... | University of Pennsylvania, Philadelphia, Pa. <i>Term expires January, 1920</i> |

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SIGMA XI QUARTERLY

EDITORIAL COMMITTEE

Edward Orton, Junior
Floyd Karker Richtmyer

Henry Baldwin Ward
Samuel Wendell Williston

Published in the months of March, June, September and December, for the Society of Sigma Xi by George Banta, Menasha, Wisconsin.

Volume III

MARCH, 1915

Number I

THE PHILADELPHIA CONVENTION

Under the able leadership of President Cattell the business session of the Philadelphia Convention made great advances in adjusting the methods of the Society to present day conditions. Every member who reads carefully the new Constitution printed as a supplement to this number of the *QUARTERLY* must recognize that it is better calculated than the older form to direct the activities of a growing and complicated organization. A smaller group of leaders in the new Executive Committee takes the place of the former Council which had grown until its membership with the new chapters just added would have equalled forty. So large a group can not transact business by mail and scattered as it was from the eastern to the western limits of our land no one could hope to convene it even for a single annual session. The delays and confusion resulting from this condition were serious. In entrusting control to a smaller body the Society of the Sigma Xi is following a tendency thoroughly approved in modern business organization.

Attention should also be directed to the radical change made in the method of granting new charters. Under the new law each application is considered by the Executive Committee and their recommendation is transmitted to the individual chapters for information merely since final action is taken by the annual convention. This is not likely to modify former standards for granting charters, but it will do away with the former unfortunate delays. It will also permit more accurate inquiry into the circumstances of an individual case and will place the Society in possession of fuller information when the time for final action arrives.

The long pending question concerning types of membership and basis for elections to Sigma Xi was debated very earnestly and fully. The final vote shows that a considerable majority thinks that some

change is desirable, and perhaps it indicates equally that the right method has not yet been worked out. The Yale position so ably and eloquently presented by Professor Tracy influenced enough votes to determine the final result. It is certainly appropriate to add that this position was strengthened by the attitude of the Yale Chapter at the close of the debate in moving a request for a report to the next convention on plans for securing greater elasticity in membership in different chapters.

The University of Pennsylvania Chapter proved unequalled as a host. Never has the annual dinner been given in so attractive an environment and never have the delegates been served better in every way. Those present carried away a sense of personal obligation to the members of the local chapter that will hold the event bright in their memory for a long time to come. Fortunately the attendance was large, perhaps the largest yet recorded at an annual dinner. It was also well distributed through the chapters and representative in every way. Certainly it was fortunate for the delegates from the new chapters at Washington, D. C., and at the University of Texas to be welcomed to membership in the active circle at so successful a convention.

With this issue the *QUARTERLY* appears in a new dress. The slight change in form permits the utilization of more space for text matter. The contract for printing the volume has been awarded to the George Banta Publishing Company, Menasha, Wisconsin. They are anxious to make the publication in every way worthy of the Society. Members will undoubtedly appreciate the new make-up and type face. It may be that other modifications will not appeal so strongly and the Editorial Committee will be glad to receive definite suggestions concerning the form or style of the present number. Constructive criticism would aid greatly in making the publication useful to the Society, provided members will make their suggestions direct to some member of the Editorial Committee. The most valuable hint is lost if it is not sent personally to the committee. Chapter secretaries and others are reminded that all corrections for mailing lists and all matter for the *QUARTERLY* should be sent to the Managing Editor and not in any case to the publisher.

PROCEEDINGS

OF THE

SIXTEENTH CONVENTION OF THE SOCIETY OF THE SIGMA XI

PHILADELPHIA, DECEMBER 28, 1914

The Sixteenth Convention of the Society of the Sigma Xi was called to order by President J. McK. Cattell, in the Fencing Room of the Gymnasium, University of Pennsylvania, at 2:05 p. m., December 28, 1914. The President appointed the following a Committee on Credentials: Allan J. Smith, J. F. Kemp, and F. R. Moulton. They reported twenty-two chapters represented by delegates presenting credentials, as follows:

| | |
|------------------------------|--|
| Brown | R. G. D. Richardson |
| Case | C. S. Howe, T. M. Focke, D. C. Miller |
| Chicago | F. R. Moulton, A. C. Lunn |
| Columbia | J. McK. Cattell, J. F. Kemp |
| Cornell | E. L. Nichols, F. K. Richtmyer |
| Illinois | W. S. Bayley, H. L. Rietz |
| Indiana | E. R. Cummings |
| Iowa | G. W. Stewart, G. F. Kay, A. O. Thomas |
| Kansas | P. F. Walker |
| Michigan | K. E. Guthe, F. C. Newcombe, A. F. Shull |
| Missouri | M. F. Meyer, G. S. Dodds |
| Northwestern | Henry Crew |
| Ohio State | J. H. Schaffner, C. S. Prosser, F. L. Landacre |
| Pennsylvania | O. L. Shinn, D. H. Bergey, F. Ehrenfeld |
| Purdue | P. N. Evans |
| Rensselaer | E. D. N. Schulte |
| Syracuse | C. W. Hargitt |
| Union | O. H. Landreth, J. H. Stoller, C. E. F. Garis |
| Washington (D. C.) Alumni .. | Paul Bartsch, M. W. Lyon, B. H. Ransom |
| Washington University | J. M. Greenman |
| Worcester | A. W. Ewell |
| Yale | J. Barrell, J. C. Tracy |

The minutes of the Fifteenth Convention, held in Atlanta last year, were accepted as printed in the SIGMA XI QUARTERLY for March, 1914.

The President appointed a Nominating Committee consisting of the following: E. L. Nichols, S. A. Forbes, C. W. Hargitt, F. C. Newcombe, and M. F. Meyer.

The Treasurer read his annual report; it was voted that the report be received and with bank book and vouchers, be referred to the auditing committee. (This report is given in full on page 18).

The President appointed M. C. Whitaker, Columbia University, auditor for the Treasurer's account. (The report of the auditor is appended to the Treasurer's report.)

The President announced that, following custom, the reports from the several chapters would be called for at the close of the annual dinner in the evening.

The President referred to the work of the two committees on Revision of the Constitution, which had held numerous meetings and had considered carefully two important revisions, already printed and fully explained in the SIGMA XI QUARTERLY for December, 1914; one of these revisions, relating to the method of transacting the business of the Society, was introduced by the Cornell Chapter; the other, introduced by the Case Chapter, refers to two classes of membership. Prof. E. L. Nichols, a member of both committees, was called upon to introduce the various proposed revisions.

It was voted that the Society proceed to the consideration of the amendments to Article VII (Officers) of the Constitution, as given on page 107 of the SIGMA XI QUARTERLY for December, 1914; by request the Secretary read the entire Article as it now stands; a general discussion was held regarding various features of the amendments. By unanimous vote it was resolved that the entire Article VII be amended to read as follows:

ARTICLE VII

OFFICERS OF THE SOCIETY

SECTION 1. The officers of the Society shall be a president, a secretary, a treasurer, and an executive committee of seven, of which the president and secretary shall be *ex officio* members.

SEC. 2. The officers of the Society shall be elected at conventions for a term of two years, excepting that the elective members of the Executive Committee shall be elected for terms of five years, one member to retire each year.

SEC. 3. The duties of the executive officers and of the Executive Committee of the Society shall be those which usually pertain to the several offices. The Secretary shall hold and preserve all the papers of the Society.

By unanimous vote it was resolved that the entire Article VIII (Conventions) be amended to read as follows, paragraphs (d) and

(e) of Section 2 (Delegates), and Section 3 (Credentials), and Section 4 (Order of Business) of the present article being by vote transferred to the By-Laws:

ARTICLE VIII

CONVENTIONS

SECTION 1. A regular convention of the Society, consisting of delegates from each chapter, shall be held annually at such time and place as determined by the Executive Committee of the Society, due notice being given to each chapter.

DELEGATES

SEC. 2. (a) Each chapter in good standing shall be entitled to a representation of not more than three delegates at each convention.

(b) The delegates representing any chapter shall be chosen from its resident or non-resident members; except that in case any chapter shall be unable to send its own members, it may appoint members of any other chapter as its representatives.

(c) In convention the votes shall be by chapters, each chapter having one vote.

QUORUM

SEC. 3. The delegates from the chapters in good standing in the Society, present at a duly called meeting, shall constitute a quorum at a convention.

By unanimous vote it was resolved that Article IX, Section 1 (Expenses), be amended by the substitution of the words "resident membership" for "active membership."

By unanimous vote it was resolved that the entire Article X (Amendments) be amended to read as follows:

ARTICLE X

AMENDMENTS

SECTION 1. This Constitution may be altered or amended at a convention by a two-thirds vote of the chapters represented, provided such amendment has been proposed at the preceding convention.

By unanimous vote it was resolved that Article XI (By-Laws) be added to the Constitution, these to read as follows:

ARTICLE XI

BY-LAWS

SECTION 1. Conventions shall make such by-laws not in conflict with this Constitution, as may be necessary for the proper government of the Society. Such by-laws shall become operative when confirmed by a majority vote of the chapters represented at a convention.

The By-Laws prepared by the Committee on Revision, and published in the SIGMA XI QUARTERLY for December, 1914, pages 108 and 109, were considered; after discussion, revision, and vote upon

each section and sub-section separately, in which the proposed sub-section 4 of Section I and the proposed Section III were deleted, it was unanimously voted that the By-Laws as a whole be adopted as follows:

BY-LAWS

I. CONVENTIONS OF THE SOCIETY

1. At the conventions of the Society, the order of business shall be the following:—

(a) Appointment by the President of three members to serve as a committee on credentials.

(b) Report of the committee on credentials.

(c) Approval of the proceedings of the last convention as printed.

(d) Reports of officers.

(e) Reports from chapters.

(f) Reports of committees.

(g) General business.

(h) Election of officers.

(i) Adjournment.

2. The regular order of business at a convention may be suspended by the consent of three-fourths of the chapters represented.

3. The appointment of each delegate to a convention shall be certified to by the President or Secretary of the chapter appointing him.

4. The expenses of delegates shall be paid by the chapter sending them.

5. The convention may designate an assistant secretary to keep the minutes of the meeting.

II. OFFICERS OF THE SOCIETY

1. The terms of the officers of the Society shall begin immediately after the close of the convention at which they are elected and continue for two years, or until their successors are elected. In case of vacancies, the Executive Committee shall designate officers to act until the next meeting of a convention.

2. Any vacancy caused by disability of, or resignation of the secretary, corresponding secretary, or treasurer, shall be temporarily filled by an appointment by the president until such office is filled by vote of the convention.

III. EXECUTIVE COMMITTEE

It shall be the duty of the Executive Committee to consider and make recommendations on the granting of charters as provided for in Article II, Section 3, on the basis of the following considerations:

1. In determining the award of a charter to an institution close scrutiny shall be given to the facilities and opportunities of the institution for the advancement and encouragement of original research in pure and applied science, and to the qualifications of its faculty to accomplish these ends.

It was voted that Appendix V to the present Constitution be amended by striking out the words "the Tuesday evening of".

It was moved by Cornell Chapter that Article III, Section 1, be adopted to read as follows: "The Society shall consist of asso-

ciate and active members." There followed an extended discussion of the merits of this amendment and of its effects upon the activities and influence of the chapters. Prof. John C. Tracy explained at length the reason for the opposition of the Yale Chapter to this amendment; representatives from various chapters made remarks, some representing the opinions of their chapters and some expressing personal opinions only; delegates from the following chapters spoke in favor of the motion: Case, Michigan, Missouri, Chicago, Ohio State, Cornell, Indiana, Illinois, Purdue; delegates from the following chapters opposed the motion: Yale, Kansas, Pennsylvania, Columbia, Syracuse. A vote was taken by calling the roll: the result was *yes*, 13 votes; *no*, 8 votes; the amendment was declared defeated, as it failed to receive the required two-thirds vote. The chapters voting *yes* were Cornell, Union, Ohio, Brown, Iowa, Chicago, Michigan, Illinois, Case, Indiana, Missouri, Purdue, and Washington University; the chapters voting *no* were Rensselaer, Kansas, Yale, Pennsylvania, Columbia, Northwestern, Syracuse, and Worcester; no vote was recorded by the Washington Alumni Chapter.

The amendments to Article II (Chapters) of the Constitution as proposed on page 105 of the SIGMA XI QUARTERLY for December, 1914, were severally considered; it was voted unanimously that the proposed Article II, Section 1 be adopted; it was voted unanimously that the proposed Article II, Section 2 be adopted; it was voted that the proposed Article II, Section 3 be amended by inserting the words "to the several chapters and" after "report" and be then adopted; it was voted unanimously that Article II, Section 4 be deleted; it was voted unanimously that the proposed Section 5 be adopted as Article II, Section 4, this new section including the present Section 6; it was unanimously voted that the proposed new Section 5 be deleted; it was unanimously voted that the present Section 7 be deleted; it was unanimously voted that Article II as a whole be adopted to read as follows:

ARTICLE II

SECTION 1. Chapters may be established at any educational institution in which scientific research work is cultivated and promoted.

SEC. 2. Alumni chapters may be established at any place other than an educational institution, wherever the objects of the Society would be furthered.

SEC. 3. A petition for a charter for the establishment of a new chapter shall be communicated to the President of the Society, who shall refer it to

the Executive Committee of the Society for consideration and report to the several chapters and to the (next) convention with its recommendation. A charter shall be granted by a three-fourths' vote of the convention.

SEC. 4. A charter for the establishment of a new chapter shall be issued by the President immediately after the convention, granting it in the following form:

To whom it may concern. Be it known that a Charter for the establishment of a chapter of the Society of the Sigma Xi at is hereby granted to the following persons as Charter Members, conveying to them and their duly elected associates and successors all the privileges conferred by the Constitution of the Society:—

.....
 In witness whereof the signatures of the president and secretary and the seal of the Society are hereunto affixed on this the —— day of —— in the year of our Lord ——.

It was voted that the Treasurer be authorized to make an assessment of fifty cents per active member to meet the expenses of the current year.

The following amendment to the Constitution was proposed by the Union Chapter and was duly seconded; this amendment applies to the amended Article VII (Officers) as adopted at this meeting:

Resolved that Article VII be amended by the insertion of the following words as Section 2, and that the present Section 2 and Section 3 become Section 3 and Section 4: "Section 2. At the annual convention of the Society preceding the one at which officers are to be elected, a Nominating Committee of five members shall be elected by a preliminary and final ballot of the chapters present. The Nominating Committee shall report to the Executive Committee, not later than ninety days preceding the date of the coming Convention, its proposed list of officers for ensuing year, and the Executive Committee shall send such list of officers to the several chapters not less than sixty days preceding the date of the coming Convention."

The following amendment to the Constitution was proposed by the Kansas Chapter and was duly seconded; this amendment applies to the amended Article X (Amendments) as adopted at this meeting:

Resolved that Article VIII, Section 5 of the Constitution be amended by the addition of the words: "provided said delegates represent not less than one-half of the active chapters".

The following amendment to the Constitution was proposed by the Union Chapter and was duly seconded; this amendment applies to the amended Article X (Amendments) as adopted at this meeting:

Resolved that Article X, Section 1 of the Consitution be amended by the addition of the words: "or shall have been submitted by any chapter to the several chapters through the Executive Committee not less than ninety days prior to the date of the next coming convention."

Upon motion by the Yale Chapter, seconded by the Kansas Chapter, it was voted that the Executive Committee be asked to consider for report to the Convention in December, 1915, plans making for a greater elasticity in membership whereby each chapter may more effectively exert its influence upon the body of undergraduate students.

Upon motion by the Kansas Chapter, it was voted that the Executive Committee be asked to consider for report to the next Convention a change in the number of undergraduates that may be elected to membership.

The meeting adjourned at 5:45 p. m. to attend the annual dinner.

DAYTON C. MILLER, *Recording Secretary*.

The Society gathered for the annual dinner at 6 p. m., in Houston Hall. In spite of the fact that an unexpected number of guests reported without notice at the last minute, arrangements were soon made to care for all and about 160 guests sat down at the tables. The occasion was unique not only in the attractiveness of the room in which the dinner was served, but more even in the use of the special silverware and china, ornamented with the monogram of the society, which was placed at our disposal by the Pennsylvania chapter.

Professor Eric Doolittle, President of the Pennsylvania chapter, expressed to the visitors, in his formal greeting the cordial welcome that was evidenced in many other ways also. President Cattell responded briefly and then read the customary presidential address which is printed elsewhere in this number. A vote of thanks was adopted with enthusiasm for the work of the local committee and the generous hospitality of the chapter and of the University.

After dinner the chapters were called out in order and responded with brief reports. Since formal reports are now printed regularly in the QUARTERLY, and since chapters were often represented by those who were not official delegates, the speakers recounted events in the early history of the chapter or presented interesting bits of local color that evoked much applause and laughter. Only a few chapters were unrepresented and failed to make any report, viz.;

Rensselaer, Missouri, Colorado, Union, Minnesota, Stanford, California, University of Washington, Worcester, and Washington University.

The President announced that by vote duly taken in accordance with the terms of the Constitution, charters had been awarded to the University of Texas and to the Alumni Chapter at Washington, D. C. The delegate of the latter responded with a report on the outlook for the new venture that was enthusiastically approved.

The report of the Nominating Committee was presented, recommending the following named persons for the positions indicated:

President, CHARLES S. HOWE.

Secretary, HENRY B. WARD.

Treasurer, JAMES F. KEMP.

Executive Committee:

J. McKeen Cattell for term ending January, 1916.

Julius Stieglitz for term ending January, 1917.

Dexter S. Kimball for term ending January, 1918.

Edward Orton, Jr. for term ending January, 1919.

Clarence E. McClung for term ending January, 1920.

It was voted unanimously to approve the report and elect the persons named.

The President then declared the Philadelphia Convention closed.

HENRY B. WARD

[The Recording Secretary was listed by the American Association for the Advancement of Science for an important address on the evening of our annual dinner so that he was unable to attend or present a report of that session in his official record of the Convention Proceedings.]

LIST OF GUESTS AT ANNUAL DINNER

| <i>Name</i> | <i>Chapter or Location</i> | |
|-------------------------------------|----------------------------|-----------------------------|
| Altenbury, Edgar | | Blaker, Ernest, Cornell |
| Babb, M. J., Pennsylvania | | Bradshaw, John W., Michigan |
| Baldwin, B. T. | | Broadhurst, Jean Columbia |
| Barrell, Joseph, Yale | | Brown, S. D. |
| Barton, S. G., Pennsylvania | | Buchanan, R. E., Chicago |
| Bartsch, Paul, Iowa | | Carothers, Eleanor, Kansas |
| Bauer, L. A. | | Carter, Edna |
| Bayley, W. S., Illinois | | Cattell, J. McK., Columbia |
| Beattie, R. Kent, Washington, D. C. | | Cattell, Mrs. J. McK. |
| Bergey, D. H., Pennsylvania | | Chandler, W. H., Cornell |
| | | Cole, A. D., Ohio |

- Colton, H. S., Pennsylvania
 Cooley, J. S.
 Crook, A. R., Northwestern
 Cummings, Edgar R., Indiana
 Day, E. C., Syracuse
 Doolittle, C. L., Pennsylvania
 Doolittle, Eric, Pennsylvania
 Downing, E. R.
 Duncan, R. W.
 Duncan, R. C.
 Edson, H. A., Wisconsin
 Ehrenfeld, F., Pennsylvania
 Emerson, R. A., Nebraska
 Evans, P. N., Purdue
 Ewell, Arthur, Worcester
 Focke, Theo. M., Case
 Fox, Henry, Pennsylvania
 Fox, Mrs. Henry
 Gilbert, E. M., Wisconsin
 Glenn, O. E., Pennsylvania
 Greenman, J. M., Chicago
 Grondahl, L. O., Washington State
 Guthe, K. E., Michigan
 Hargitt, Charles W., Syracuse
 Harman, Mary T., Indiana
 Harper, D. R., 3d, Washington, D. C.
 Heinicke, Arthur J., Cornell
 Hepburn, Joseph S., Pennsylvania
 Hering, C., Pennsylvania
 Heuser, Chester H., Kansas
 Hodge, Percy, Alpha
 Hoge, Mildred
 Hotchkiss, H. J., Alpha
 Howe, C. S., Case
 Howard, L. O., Alpha
 Hower, H. S., Case
 Hower, Mrs. H. S.
 Hoyt, J. E., Pennsylvania
 Humphreys, W. J.
 Humphreys, Mrs. W. J.
 Jennings, O. E., Omega
 Jennings, Mrs. O. E.
 Johnson, A. G., Wisconsin
 Kemp, James F., Columbia
 Leighty, C. E., Alpha
 Long, John H., Northwestern
 Love, Harry H., Alpha
 Karrar, Enoch, Washington State
 Kay, G. F., Iowa
 Keller, H. F., Pennsylvania
 Keyser, C. J.
 Keyser, Mrs. C. J.
 Landreth, Olin H., Union
 Leland, O. M., Cornell
 Lewis, Albert B., Chicago
 Lyon, Jr., M. W., Brown
 Lyon, M. W., Jr., Brown
 Lunn, Arthur C., Chicago
 Mabery, C. F., Case
 MacFarlane, John M., Pennsylvania
 MacNeal, Ward J., Illinois
 McClung, C. E., Pennsylvania
 McDowell, Louise S., Cornell
 McIndoo, N. E., Washington, D. C.
 Magruder, Wm. T., Ohio
 Mathews, C. W., Kentucky State
 University
 Merritt, E.
 Miller, Mrs. D. C., Cleveland, Ohio
 Moler, G. S., Cornell
 Moore, Emeline, Alpha
 Moore, J. P., Pennsylvania
 Moulton, F. P., Chicago
 Myers, C. H.
 Neal, H. V., Illinois
 Nichols, Edward L., Cornell
 Nichols, Mrs. E. L.
 Nolen, G. S.
 O'Shaughnessy, L., Pennsylvania
 Patterson, Robert A., Yale
 Pennell, F. W., Pennsylvania
 Pickering, E. C.
 Plummer, G. W., Pennsylvania
 Prosser, Charles S., Ohio
 Randall, H. M., Michigan
 Ransom, B. H., Washington, D. C.
 Rietz, H. L., Illinois
 Richards, A., Texas
 Richtmyer, F. K., Cornell
 Riesman, David, Pennsylvania
 Rivas, D., Pennsylvania
 Robbins, Wm. J., Cornell
 Richardson, R. G. D., Brown
 Roe, E. D., Jr., Syracuse
 Safford, F. H., Pennsylvania
 Schaffner, John H., Ohio

- | | |
|--------------------------------|---------------------------------|
| Schmidt, W. G. | Sweeney, O. R., Pennsylvania |
| Seal, A. N., Pennsylvania | Tatnall, R. R., Northwestern |
| Sharp, Lester W., Chicago | Thayer, Horace H., Jr., Cornell |
| Shinn, Owen L., Pennsylvania | Thomas, A. O., Iowa |
| Shull, A. F., Michigan | Trotter, S., Pennsylvania |
| Shull, G. H., Chicago | Ulrich, E. B. |
| Shull, J. Marion | Veblen, Oswald, Chicago |
| Smyth, H. F., Pennsylvania | Vedder, Edmund B., Pennsylvania |
| Spence, B. J., Illinois | Wagner, Samuel T., Pennsylvania |
| Springsteen, H. W., Case | Waggoner, C. W., Alpha |
| Starr, Anna M., Chicago | Walker, P. F., Kansas |
| Steckbeck, D. W., Pennsylvania | Ward, Henry B., Illinois |
| Stevens, Neil E., Yale | Wenrich, D. H., Kansas |
| Stewart, A. H., Pennsylvania | White, Henry S., Northwestern |
| Stewart, George Walter, Iowa | White, Mrs. Henry S. |
| Stokey, Alma G., Chicago | Wick, Frances G., Cornell |
| Stone, Witmer | Wolcott, Robert H., Nebraska |
| Stradling, G. F., Pennsylvania | Young, Robert T., Nebraska |
| Stuhlmann, Otto, Jr. | Youngker, H. W., Pennsylvania |

SCIENTIFIC RESEARCH AND SIGMA XI*

Before the chapter reports are presented, it is my business for twenty minutes to address you, yours to listen; for Sigma Xi too expects every man to do his duty. We have eaten; water has been served; it is a pity that we can not now be merry. For whatever may happen to us, Sigma Xi will not die tomorrow. We have long since passed through the dangerous period of infancy; at the age of twenty-seven the death rate is but five per thousand. And we surely are a chosen people; like the patriarchs of old, the years of our life are measured not by decenniums but by centuries.

Our first quarter century has indeed been a period of marvelous growth and fruition. As exhibited in the record and history, admirably compiled by our secretary, it is one of the fairy tales of science, incredible if it were not true. The beginnings at Cornell University were small, but like the zygote, they contained the elements which in interaction with a fit environment grew into the great organism, of which each of us is one seven-thousandth. Unlike the individuals of the species to which we belong, our corporate growth does not stop at the age of twenty-five, nor will senility follow fifty years of activity.

In a recent article an eminent American statistician states that 30.7 per cent of Rhode Island native-born married Protestant mothers are childless. The distinguished dean of a great woman's college within a thousand miles of Philadelphia in a chapel address to the students said that it is not just to charge the decreasing birth rate to the higher education of women; although the college had been established only a few years, forty per cent of its alumnae were married and sixty per cent of them had children. When birth-rate statistics are so complicated, it may not be safe to state that we are all the children of Henry Shaler Williams. But this is true, though polyandry appears on the records and we have certainly had polygamous nursing. We may indeed regard our leaders and each of us as somas of the immortal germ plasm, which seeks the light of truth:

That light whose smile kindles the universe,
That beauty in which all things work and move.

*Remarks by the president of the Society of the Sigma Xi at the annual dinner given at the University of Pennsylvania on January 4, 1915.

As a hand apart from the body is not a hand, as a man apart from other men is not a man, so a scientific man is not conceivable apart from the long line of scientific worthies, great and small, who have bequeathed to us our present heritage, or from his fellow workers, old and young, without whose sympathy and coöperation no research would be possible. Our society has been founded to personify and promote the spirit of comradeship and zeal which is essential to scientific research. A century earlier, Phi Beta Kappa was established to encourage and reward scholarship in our colleges. It may be desirable to maintain the tradition of classical learning, but as science is better than culture, as the future is of greater concern than the past, so creative science is more than passive scholarship.

The activities of Sigma Xi, with which I have indeed least sympathy are those which we have inherited from Phi Beta Kappa. It is a pity that we did not find an honest English name. How many of us know whether *Ευνῶνες* means companions, or zealous or research? I happen to be one of the small minority of our members who read Greek for professional purposes after leaving college, but I do not know the orthodox way to pronounce our initials. In the presence of these modern Greek mysteries, one feels like the little girl who, being sent to school for the first time, rushed home on hearing the older boys recite: At 'er, beat 'er, jam 'er, eat 'er.

A pendant gold key suitably engraved is too reminiscent of the dueling scars on a face made and marred in Germany, a personally conducted advertisement of a past university student and presumably member of a corps. It has been suggested that the proposed class of associates might be entitled to wear only a smaller key. Why not let the professor carry one three inches long, and if he should become a president, make it a foot long, even though four to one would inadequately represent the difference in eminence and ability to pay for the gold? The badge may be a convenient way to pick up a congenial acquaintance in a smoking car; but would it not be better to wear a more extended label to the effect that I am not only Sigma Xi and Phi Beta Kappa too, but also a teacher of psychology, interested especially in science, education and democracy, but ready to talk about almost anything except golf and psychical research?

It is better to select and distinguish students for promise or performance in research than for high grades in classes. If interest

in research or scholarship can be stimulated by such rewards they are legitimate. But when we embroider with gold braid, we are likely to bind with red tape. I wonder whether a single piece of research work has been conducted or improved because it might lead to election to the National Academy of Sciences or to an honorary university degree. The University of Königsberg has conferred the degrees of its four faculties on General von Hindenburg for driving the enemy from the gates of the city, but it may be doubted whether even the doctorate of divinity will be of great assistance to him in checking the invasion. Like old china or other bric-a-brac in a laboratory, all such inherited and artificial distinctions are out of place in a democracy. If members of the National Academy received a salary for useful services, or if membership in Sigma Xi enabled students to go on with their researches then the election would be useful and desirable. It would from my point of view be better if membership in Sigma Xi depended on the option and efforts of the student and the scientific man, such as attendance at meetings and the presentation of a paper.

Even the separation of the academic sheep from the philistine goats does not seem to be a desirable segregation. A college and university education is certainly at present the gateway through which they must pass who wish to follow the paths of scientific research. But from some points of view, this is an evil necessity rather than an ideal condition. It is costly in money and precious years, in initiative and originality. The two greatest scientific men whom we have known, Simon Newcomb and William James, did not enjoy or suffer the orthodox college or university education; the same is true of the two living Americans responsible for the most important applications of science—Mr. Edison and Mr. Bell. If two academic degrees were required—four years of college culture and four years of professional training—before the poet, the novelist, the musician, or the artist could become productive, what would be left of the literature and the art of the world? It is a system of privilege when only those can enter the professions whose parents are able to support them to the age of twenty-seven years; it postpones too long family duties and civic responsibility, and those who travel long over well-worn ways may accumulate baggage and habits which burden rather than help the exploration of new territory.

Your tonight's figurehead has been accused of being habitually "agin the administrashun," but in intention at least he is radical only as to ends, while reasonably conservative as to means. Our Society of the Sigma Xi, like the university of which it is a part and much else that is best in our civilization, is a heritage handed down to us from other days and other ways, only partly adjusted to a democracy in the twentieth century. Institutions and customs should not be bent until they break; they should be permitted to reach toward the light by their own gradual growth. We can not live in a true democracy until it exists, and in the meanwhile we must do the best we can with our inherited institutions and human nature. Our Society has in several directions led the way—in placing research before high grades in class work, in uniting these showing the beginnings of aptitude for research work with productive scientific men, in emphasizing and promoting the comradeship and common interests of scientific workers in arranging scientific meetings and lectures to which all are welcome, in putting applied science on terms of equality with other research, lastly and chiefly in being one of the active agencies contributing to scientific advance.

It is anti-democratic to hold that culture is precious because it can be attained only by those having wealth and leisure, that science is noble only when it is useless. The mathematician who thanked God that his geometry was a virgin that had never been prostituted by being put to any use did not stay in America longer than he could help. Pure science may proceed on a long orbit, but it can not go off on a tangent to the real things of life. Our Society has served both science and democracy by placing engineering on terms of equality with other sciences. The distinction is not between scientific discovery and practical applications, but between the discovery of new truths or new ways of doing things and the repetition of those already learned; not between the pathologist who studies diseases and the one who finds cures, but between the experimental pathologist and the routine practising physician; not between the engineer who builds bridges and the one who writes about bridges, but between the scientific man who devises new methods and the builder who copies old models. Adopting what Francis Bacon wrote in another connection: "These two subjects, which on account of

the narrowness of men's views and the traditions of professors have been so long dissevered, are, in fact, one and the same thing, and compose one body of science."

And most of all, our Society of the Sigma Xi has served democracy and science by emphasizing research work at the outset of the student's career and as the essential life work of each of our members. It is our business to promote scientific research by every method and by every motive. A correct statement of the economic value of science to society would at first sight seem incredible. It is safe to say that the applications of science have quadrupled the productivity of labor and doubled the length to human life, though it is not possible to give the exact period from which this result is reckoned. The writer would guess that so much progress has been made within from one hundred to one hundred and fifty years. In some kinds of work, as in the transportation of freight over land and some kinds of machinofacturing, the efficiency of labor has been increased a hundredfold, in others, as in agriculture, it may have been only doubled. In the period during which the efficiency of labor has been quadrupled by modern science, the annual production of wealth in the civilized world has perhaps been increased a hundred billion dollars representing a capital sum of two thousand billion dollars.* A great part of this advance is due to a few men, probably one-half of it to, at most, 10,000 men. The value of each of these men to the world has been a hundred million dollars; they have been men not abler nor more productive on the average, than the upper five hundred of our leading American men of science.

So far from being exaggerated this valuation of science and of scientific men neglects the decrease of disease and suffering, the increased length of life and the vast number of human beings for whom life has been made possible. It can not take account of the moral, intellectual, political and social changes wrought by science and its applications. Science has made democracy possible and has given us as much of it as we have. The applications of science have abolished the necessity of continuous manual labor from childhood to old age, they have made feasible universal education,

*This enormous figure is based on the assumption that there are 25,000,000 people in the United States, whose productive work is worth on the average \$1,000 a year and six times as many in the civilized world who earn on the average half so much, with enough left over to balance the earnings of 100 years ago.

equality of opportunity and equality of privilege, they have banished legal slavery, they have partly done away with the labor of children and the subjection of women. Science has given us freedom in the moral as well as in the material world, freedom from ignorance, superstition and unreason, the means of learning the truth and the right to tell it.

The service of science for the world is by no means complete. The productivity of labor can be again doubled by further scientific discovery; it can be more than doubled by the selection of the right men for the work they do and by correct methods of work. The value of wealth can be doubled by its proper distribution and use. Warfare, preventable disease and vice, waste and display, the futile complications of civilization, consume one-half of all the wealth that is produced. We do not know the conditions of happiness and real welfare or how they are to be attained. Science should continue to press to the limit economy of production and the conservation of health and life; at the same time it should increasingly direct its methods to the control of human conduct.

Suddenly, out of its stale and drowsy lair, the lair of slaves,
Like lightning it leapt forth half startled at itself,

Its feet upon the ashes and the rags, its hands tight to the throats of kings.

On us here in America there has been thrust the duty and the privilege to carry forward the flickering torch of science and of civilization. Our society of the Sigma Xi and each of us have indeed great opportunity and great responsibility.

J. McKEEN CATTELL

REPORT OF THE TREASURER FOR 1914

RECEIPTS

| | |
|-----------------------------|----------|
| Balance from 1913 | \$314.16 |
| Check No. 50 returned | 15.00 |

ASSESSMENTS PAID

| | | |
|-------------|------------------------------------|------------|
| Jan. 5 | Purdue | 22.50 |
| 15 | Columbia | 50.00 |
| Feb. 10 | Minnesota | 61.00 |
| 16 | Wisconsin | 67.00 |
| Mar. 10 | Cornell | 93.00 |
| 11 | Chicago (Nov. 17 and Mar. 3) | 155.50 |
| 11 | Iowa (Nov. 17) | 24.50 |
| 12 | Union | 7.50 |
| 17 | Ohio State | 49.00 |
| 17 | Missouri State (Nov. 17) | 33.50 |
| 17 | Case | 13.00 |
| 17 | Northwestern | 24.00 |
| 19 | Minnesota | 61.00 |
| 21 | Washington, St. Louis | 21.50 |
| 25 | Syracuse | 29.00 |
| 29 | Illinois | 77.00 |
| Apr. 4 | Wisconsin (Mar. 3) | 70.50 |
| 14 | Washington State | 21.00 |
| 28 | Kansas | 31.50 |
| 28 | Indiana (Nov. 17) | 17.50 |
| May 5 | Iowa (Mar. 3) | 24.50 |
| 12 | Michigan | 70.00 |
| 28 | Colorado | 17.50 |
| June 10 | Yale | 70.50 |
| Sept. 21 | Stanford | 55.00 |
| Dec. 9 | Missouri (Mar. 3) | 33.50 |
| 19 | Pennsylvania | 62.00 |
| Total | | \$1,591.66 |

EXPENSES

| | | |
|---------|--|----------|
| Jan. 22 | Library Bureau Cards | \$ 20.00 |
| 22 | R. R. Donnelley & Sons, part payment on <i>Record</i> | 300.00 |
| Feb. 9 | Secretary's Assistant | 26.75 |
| 11 | R. R. Donnelley & Sons, part payment on <i>Record</i> | 61.00 |
| Mar. 3 | R. R. Donnelley & Sons, part payment on <i>Record</i> | 100.00 |
| 11 | Secretary's office expenses | 27.00 |
| 11 | 10,000 envelopes for QUARTERLY | 28.00 |
| 18 | Treasurer's office expenses | 5.00 |
| 18 | R. R. Donnelley & Sons, final payment on <i>Record</i> | 22.19 |
| Apr. 7 | Secretary's Assistant | 16.50 |
| 24 | Directing QUARTERLIES | 5.75 |

EXPENSES—Continued

| | | |
|-------------|--|------------|
| May 5 | Secretary's Assistant | \$ 15.00 |
| 5 | 3,000 SIGMA XI QUARTERLIES | 97.70 |
| June 10 | Secretary's Assistant | 15.00 |
| 28 | Advance to Secretary to cover office expenses during summer and subsequently covered by vouchers | 100.00 |
| Aug. 22 | 3,000 SIGMA XI QUARTERLIES | 97.70 |
| 31 | Secretary's Assistant | 35.65 |
| Oct. 12 | 3,000 SIGMA XI QUARTERLIES | 97.70 |
| 12 | Secretary's Assistant | 30.00 |
| Nov. 11 | Secretary's Assistant | 35.00 |
| Dec. 8 | Secretary's Assistant | 35.00 |
| 8 | Secretary of Council, office expenses | 32.24 |
| 11 | 3,000 SIGMA XI QUARTERLIES and extra pages | 113.03 |
| 18 | Secretary's Assistant | 27.00 |
| Total | | \$1,343.21 |

SUMMARY

| | |
|----------------|------------|
| Receipts | \$1,591.66 |
| Expenses | 1,343.21 |
| Balance | \$ 248.45 |

The total expenses of 1914 (\$1,343.21) show an increase over those of 1913 (\$904.74) of \$438.47, an amount practically assignable to the payments on the *Quarter Centennial Record* of \$483.19 as stated above. This call, extending back as it did into 1913, will make clear to the members the necessity of the two closely following assessments of November 17, 1913 and March 3, 1914. Of the remaining expenses for 1914 practically \$800.00 is chargeable to the SIGMA XI QUARTERLY, whose expenses the Editor has succeeded in keeping well within the limit of \$1,000.00 set by the Convention when the publication was authorized. Members will realize on looking over the above statement that the business of the Society cannot be carried on without an assessment of fifty cents for each active member in each calendar year. Trouble would be saved, were this amount added to the regular Chapter dues as collected for local running expenses, and were it held in anticipation of the call of the General Treasurer. On this basis the Society at large would have an income of a little over \$1,100.00, a sum no larger than is necessary to maintain a bank account and to make allowances for some inevitably slow payments.

At present the Nebraska Chapter still owes the assessment of November 17, 1913; and nine Chapters, viz., Rensselaer, Nebraska,

REPORT OF THE CORRESPONDING SECRETARY 21

Brown*, California, Columbia, Indiana, Worcester Polytechnic, Purdue and Washington University (St. Louis) have not yet paid the assessment of March 3, 1914. On the basis of previous payments these back dues would return a little over \$240.00. On account of having sufficient funds to carry the Society through the past year the Treasurer has not called insistently upon the backward Chapters. Obviously, however, the balance in hand, \$248.45, when increased to about \$500.00 from the assessments now due, will not carry the Society through 1915 without a further call. Since the Treasurer has not been able to escape the knowledge that the recent assessments have been extremely unwelcome to some Chapters, the above phases of our finances should be understood.

Respectfully submitted,

JAMES F. KEMP, *Treasurer*.

December 26, 1914.

This is to certify that I have examined the Treasurer's Report covering the operations of Sigma Xi for the past fiscal year, and find that all balances check and are correct.

N. C. WHITMAN, *Auditor*.

January 16, 1915.

REPORT OF THE CORRESPONDING SECRETARY OF THE SOCIETY OF THE SIGMA XI

TO THE ANNUAL CONVENTION HELD IN PHILADELPHIA,

DECEMBER 29, 1914.

The marked spirit of research activity and its utilization in connection with various commercial organizations has afforded opportunities for the extension of Sigma Xi which might not have been suspected some years ago. A group of eight members connected with a large establishment for the manufacture of special machinery organized themselves informally in a club that met for scientific discussions regularly during the last year. The meetings were so successful that one of the members wrote seeking a list of all members of the Society residing in the vicinity of that plant. The QUARTERLY has heretofore circulated only among active members. Might not its wider circulation arouse and maintain more active interest in the ideals for which the Society stands, and would not the movement gain if it were also to be sent out among the inactive membership?

*January 25, 1915, the assessment of the Brown Chapter was paid.

The secretary is indebted to those members who at various times and from various places have sent all sorts of printed information concerning various chapters and members of the organization. Much that has been sent in would be of interest to other members of the Society but the time and energy involved in rewriting the data from newspaper clippings or college dailies, not to mention printed programs of various kinds, precludes the possibility of utilizing most of it. If members would send such information in the form of a brief record ready to print, then much could be used that now has to be passed by.

With the December issue was completed the second year of the SIGMA XI QUARTERLY, and it is appropriate to report to the Society what has been accomplished through this agency. Volume I contained 112 pages, and Volume II, 116 pages. The material included has been limited to matters specifically bearing upon the organization of the Society and its methods of procedure. The first number in each year has been utilized for the proceedings of the midwinter convention and corresponds thus rather closely to the pamphlet of the convention proceedings that has been issued for years by the Society. The last two numbers were occupied almost exclusively by reports and discussions concerning the proposed revision of the constitution. Other numbers have contained briefer articles on the ideals of the Society, the methods for the election of new members, the policy of the organization, the proposed dual membership, for what Sigma Xi stands, the value of the Society, the proposed alumni chapter. Lists of national officers and chapter officers, which were revised from number to number, and the chapter reports, complete the contents of the two volumes.

It is important that the attention of the Society in general should be called to the information that has been put in a permanent form in the shape of these chapter reports. In the eight numbers that comprise the two volumes there have been printed twenty-six such reports. No reports at all were printed from Brown, California, Case, Columbia, Syracuse, Washington University, and the University of Wisconsin. Two reports each have been printed from Chicago, Cornell, Illinois, Michigan, and Purdue. A single report has been printed from each of the chapters not named. In the first number of the QUARTERLY the editorial committee outlined the

method which should be followed in preparing the chapter reports, and the printed statement of the committee on this matter is worth citing:

"It is evident that they should be reasonably uniform. This problem has received careful attention since chapter reports are to include a list of elections, and the justification of elections in different chapters has been questioned somewhat sharply both by members and outsiders. It is with the view to answer such criticisms and to forestall them that the committee has suggested a definite form for presenting the facts concerning newly elected members. Each record will give the name and grade of membership as well as the particular contribution to knowledge which is the basis of the election. The criticism which has been made that the Society was not holding its standards and was distributing its honors too broadly must present itself strongly to anyone who reads the long list of elections in our chapters. Any such mere list of names suggests only the size of the institution, or possibly also, the generosity of the electors. When, however, this list is printed with a definite record of the work done by each candidate, it will serve to show the breadth of the work carried on at the institution as well as to demonstrate a reason for the individual election."

The secretary has received reports from a number of chapters which, under the instructions of the committee as expressed in this printed notice, he was compelled to return to those chapters or at least was unable to use in the *QUARTERLY* because they were not ready to print. The editorial committee felt clearly that the mere publication of any list of names would not be of any great service to the chapter or to the Society, and might easily arouse criticism where the basis of the election was not included in the individual case. For some reason it seemed difficult to bring this home to the individual secretaries, and in a few rare instances the chapter felt itself aggrieved at the action of the editorial board. Reports from the largest chapters, such as Cornell and Chicago, have been most admirable demonstrations of the fitness for membership manifested by the persons elected, as was shown by the definite evidence of original work accompanying each name. On the other hand, it is worthy of note that at least one chapter in its formal report, which was duly printed as sent in, confessed to a distinct violation of the terms of the constitution that require the publication of research work as a basis for faculty election. In that particular

case the chapter secretary stated explicitly that the candidate had not published anything but was going to do so.

The admirable presentation of widely varying practices in different chapters which were outlined in an article entitled "Taking Inventory", contributed by Professor Richtmyer of Cornell University in the last *QUARTERLY*, finds abundant confirmation in the individual chapter reports that have appeared from time to time. The secretary has been compelled to read these reports at least twice in connection with his duties as editor and has been profoundly impressed by the diversity of procedure in various chapters. It may be that such diversity is wise; on the other hand it is clear that members elected on one standard in one institution will comprise a body rather diverse in character from that elected on a distinctly different basis in another institution.

As to the value of the *QUARTERLY* to the Society the secretary has received many comments from members that vary from the extreme statement of one chapter secretary who wrote that the members of that chapter did not consider the publication worth reading and consigned it unopened to the wastebasket, to the other extreme of the enthusiastic member who regarded it as the salvation of the organization. Probably the truth lies somewhat between the two extremes and the consensus of opinion of the Society as a whole will determine the wisdom of continuing its publication and the form best adapted to its purpose.

It may be appropriate here to make some suggestions regarding the scope of the *QUARTERLY*. Each volume should certainly contain those formal and official items in the history of the organization which deserve permanent record. These are in my opinion:

1. Report of the annual convention.
2. A record of each chapter, including:
 - (a) Meetings held and addresses delivered under its auspices.
 - (b) The name of every new member elected, and a full statement concerning the basis of election.
3. A record of chapter activities, comprising their special methods for:
 - (a) Promoting research.
 - (b) Publication of the same.
 - (c) Personal association of researchers.

4. Articles on subjects bearing directly upon the work of the organization as a whole.
5. Statistics of chapters.

In an organization scattered from the Atlantic to the Pacific there is abundant chance for chapters in one region to grow away from those in another locality, for customs to spring up in one place that are foreign to another chapter, and for influence to be successfully exerted in one community that is lacking because of ignorance of its power in another community. The Society certainly needs an organ strong enough to bind it together.

It is important to note that the space now available in the *QUARTERLY* has not sufficed to print all of the articles of interest and all of the properly prepared chapter reports that might have been sent in. If this other material is to find publication, then provision must be made for a larger publication or for more frequent printing.

In the next place, is it not wise for the *QUARTERLY* to lay emphasis upon the definite means which are taken by various chapters for the encouragement of research? Certainly the maintenance of an organization which has for its function the election of members on the basis of past achievement but does not devote some distinct part of its energy to the promotion of future activities in the research field, is not a realization of the ideals which were set by the founders of Sigma Xi and which have been emphasized repeatedly by various chapters and various members. If Sigma Xi is to justify its existence, must not the encouragement of research be emphasized as a function, and will not this function be more easily and successfully discharged if there is a specific discussion of the means utilized for that end by various chapters? Individual methods have been perhaps only partially tried out in individual institutions. The announcement of these methods and the results obtained would certainly be of service to other institutions that are attempting to accomplish the same end, and the united experience of thirty chapters working under different circumstances in part at least, will contribute in an important way to the general problem of the encouragement of research that is forcing itself upon the attention of the leaders of scientific teaching and investigation, and that is bound to play a larger part in the development of our own country in the immediate future.

In connection with this would come naturally the discussion of the relations which this Society bears to industrial research in private

or endowed laboratories, in business organizations or manufacturing plants, and in experimental stations under municipal or state auspices. I confess it may not be easy to secure those who are in position to write satisfactory contributions to this discussion and are willing to attempt it. Nevertheless, it should be remembered that the *QUARTERLY* is published for private circulations within the Society, and that brief, informal discussions or individual suggestions may be of the greatest value to others who are working on the same problems. Certainly one cannot hope to reach any satisfactory conclusions in which the large body of our chapters can participate unless such discussions are carried on in print. The extreme difficulty of securing a quorum at our conventions for the transaction of necessary business, and the brief time which is of necessity given to such affairs on those occasions, indicate clearly that any more extended discussions of the important problems I have suggested, would be impracticable at that time. Is it possible to secure the general coöperation of chapter officers and members in finding or in preparing articles for such discussion as I have indicated? If so, I feel confident from the many enquiries which have come to my office from various chapters that the printed discussion will be welcome and will serve to stimulate a further interest in and discussion of the problem. It is not too much to say that the specific problems which demand attention, if Sigma Xi is to discharge its duty, are in large part new. If we of Sigma Xi do not grasp the opportunity by aiding in their solution, some other organization or some other agency will do so and will be given that position of responsibility and influence which the discussion and decision of such problems rightly deserves.

HENRY B. WARD, *Secretary*

THE ANNOUNCEMENT OF SCIENTIFIC WORK

W. S. BAYLEY

The University of Illinois, like other state universities, has suffered from the distorted and bizarre reports that have found their way into the public press through the misdirected energy of college reporters. This is especially noticeable in connection with the scientific work of its faculty. Because the institution is supported by the people it is only proper that the results of the work done by the University staff should become public property at the earliest possible moment. It is, however, desirable that this work be reported in such a way that its true significance may be appreciated. Under present conditions, when the progress or results of a piece of scientific research are reported to the public, the matter is often so written as to be meaningless, or in such a way as to emphasize only the striking, unusual, or peculiar aspects of the subject. Often the painstaking labors of a conscientious worker are made to appear puerile, or even ridiculous, because the writer of the notice was completely ignorant of the meaning of the work reported upon and could see in it nothing of importance. To the layman who reads the usual newspaper descriptions of the scientific activities of the members of a university faculty, it must appear that these men and women spend most of their time in trivial experiments, perhaps for the mere purpose of seeing if they "will work". It must appear to such a reader that the state is wasting a lot of good money which might better be applied to some other use.

It is to counteract such impressions in part that the Illinois chapter of Sigma Xi has recently authorized the appointment of an Editorial Committee whose duty it shall be to assure proper notices of the work of its members, and particularly to arrange that such notices shall be written so as to be understandable, that they shall set forth plainly the significance of the work, and if it is of such a character as to have practical applications, that these applications shall be indicated.

It is appreciated by the members of the chapter that the chapter owes a duty to the institution at which it is located. It is hoped that this duty may be discharged in some measure by presenting to the public the results of the work done by the scientific corps

of the institution in such a manner as to protect it against the criticism of wasting its funds in the support of experimenters who experiment solely for the sake of experimentation. If it can be shown that the members of the university faculty are adding something of value to the world's knowledge and that at the same time they are reasonable members of society, the chapter will have justified its existence as a part of the university organization and will have helped to place the university in a proper light before the people who so generously furnish the funds for its support.

The Illinois Committee is composed of fifteen members chosen from different departments of the University. It has elected as its chairman Dr. G. A. Miller of the department of mathematics. It is expected that each member of the Chapter from time to time will send, in duplicate, to the member of the Committee representing his department, a brief report of the progress of his investigations, abstracts of any addresses he may have given, and copies of any papers he may have published, together with a brief outline of their contents. One copy of these reports or abstracts will be sent to the chairman of the Committee to be used by him in writing an annual summary of the scientific work of the Chapter. The other copy will remain with the member receiving it and will be used as a basis for any statement he may be called upon to give to the press. All requests for information concerning the scientific activities of the members of the chapter will be referred to the Committee, and the members of the Chapter are requested to avoid talking with reporters about the scientific work of their colleagues. The reason for this is that chance remarks are apt to become distorted by the time they are enbalm'd in type and afterwards their distortion can never be remedied.

Whether or not the Committee will be able to perform satisfactorily the functions for which it was established will depend largely upon the attitude of the members of the Chapter. If they will aid the Committee by furnishing the desired information there is no question but that it will amply justify its existence.

A CORRECTION

In the December number of the *QUARTERLY*, in an article entitled Taking Inventory, a typographical error—the accidental elimination of a row of figure 1's—was responsible for some rather grotesque data in the table on page 98. The corrected table is given below:

| | <i>Group A</i> | <i>Group B</i> |
|---|----------------|----------------|
| Psychology | 8 | 3 |
| Mathematics | 13 | 0 |
| Astronomy | 13 | 0 |
| Physics | 13 | 0 |
| Chemistry | 13 | 0 |
| Botany | 11 | 0 |
| Biology | 11 | 0 |
| Entomology | 8 | 1 (?) |
| Nature Study | 1 | 4 |
| Zoology | 10 | 0 |
| Medical Sciences | 9 | 1 |
| Veterinary Sciences | 2 | 3 |
| Geology and Physical Geography | 12 | 0 |
| Mechanical Engineering | 13 | 1 (?) |
| Electrical Engineering | 13 | 1 (?) |
| Civil Engineering | 13 | 1 (?) |
| Ceramics | 0 | 4 |
| Architecture | 3 | 4 |
| Agriculture | 3 | 2 |
| Scientific Business Management | 1 | 4 |
| Market Conditions of Commodities (agricultural, engineering, etc.) | 1 | 4 |
| Domestic Science | 2 | 4 |
| Forestry | 3 | 0 |
| Chemical Engineering | 3 | 0 |
| Mining Engineering | 3 | 0 |
| Dentistry | 1 | 0 |

The undersigned would like to take this opportunity to acknowledge replies from the chapters at Iowa and at Missouri. On account of a clerical error in initials the secretary of the former chapter did not receive the circular letter on time, and although he replied by return mail, the letter came too late to be included in the report. The reply from the secretary of the latter chapter was duly forwarded but somewhere was delayed in the mails and reached me some weeks late.

F. K. RICHTMYER

A NEW LOCAL CLUB

In the spring of 1913 Mr. Eugene Van Cleef developed the happy idea that an organization of the members of Sigma Xi residing in Duluth would prove more or less successful. He got in touch with the members whom he knew personally and through them with others unknown to him. He found that the members in Duluth were engaged in many widely diverging fields of endeavor and it at once occurred to him that by meeting occasionally and exchanging viewpoints and ideas as well as discussing topics of common interest such meetings would prove highly entertaining as well as mutually broadening and instructive.

All those approached were enthusiastic about the proposed idea and his efforts culminated in a dinner given in July at the Duluth Commercial Club at which time officers were elected and an organization planned. It was decided to hold bimonthly meetings in the nature of a dinner, followed by an informal paper delivered by a member on some topic to be chosen by the speaker. After the paper a general discussion of the topic covered would be in order. It was further decided that the wives of the members should be guests at the meeting should they desire to attend; and also that the society should hold meetings open to the public at such times as visitors to the city could be persuaded to speak on topics of national interest.

Thus far all the meetings have proved extremely successful from the social as well as from the instructive standpoint. There have been eight meetings, at which the following papers have been given and discussed:

1. Organization of the Society.
2. Heredity and Environment, Dr. E. L. Twohy.
3. Design and Construction of Aerial Bridge at Duluth, E. W. Kelly.
4. Relation of Suggestion to Mental Processes, W. A. Owens.
5. Weather Report and Its Significance, J. E. Scarborough.
6. First-hand Impressions of Germany, Eugene Van Cleef.
7. Continuation of above topic, Eugene Van Cleef.
8. Iron Mining in Minnesota, Donald Wesbrook.

Below is given a list of the members of the Duluth society with their lines of work and the names of the colleges where each was elected to Sigma Xi:

E. L. Twohy, Medicine, University of Minnesota.
W. A. Owens, Education, University of Chicago.
Eugene Van Cleef, Geography, University of Chicago.

- J. E. Scarborough, Geography, University of Nebraska.
J. M. Meany, Mechanical Engineer, University of Minnesota.
O. B. Bjorge, Mechanical Engineer, University of Minnesota.
A. E. Ringsred, Electrical Engineer, University of Minnesota.
E. W. Kelly, Civil Engineer, University of Minnesota.
Mark Thompson, Agriculture, University of Minnesota.
Donald Wesbrook, Mechanical Engineer, University of Minnesota.
-

OPEN FORUM

Editor of the QUARTERLY:

I wonder whether it would be possible to publish in the SIGMA XI QUARTERLY brief abstracts of practically all the scientific papers presented before the various chapters. These abstracts could perhaps be secured from the corresponding secretaries of the various chapters, and should appear as promptly as possible. The editor would necessarily have the right to reduce the abstracts so as to bring the whole within the space available.

The publication of these abstracts would seem to me to promote at least two important objects of the Society. It would enable the members to secure accurate information in regard to recent scientific advances, especially along scientific lines which are not their own specialities. It would also probably react favorably on the papers themselves, since a prompt publication of their main results would extend their influence.

I realize that such an arrangement would increase the work of the editor as well as that of the corresponding secretaries of the various chapters, but I believe that the importance of the results would more than justify this additional labor. I believe that the QUARTERLY has already done a great deal of good and that the members of the Society are well satisfied with the results achieved thus far. Many of us, however, would welcome a policy which would lead us to look to the appearance of the QUARTERLY with a feeling that it would bring us fresh scientific facts of importance.

Very brief abstracts of the various scientific papers presented would tend to exhibit the scientific activity within the various chapters, and hence they would probably react favorably on this scientific activity. Some men would doubtless prefer to announce their results first before learned societies along their special lines, but most men

appreciate the high opinion of their colleagues in their local centers, and it would appear that the preparation of a brief abstract would not be regarded as an excessive burden.

This letter is to be regarded merely as a suggestion. You may see other channels of usefulness for the *QUARTERLY*, which would serve more fully the aims in view. It must, however, be borne in mind that many of those who are most directly connected with the administration of the Society, take a much deeper interest in the accounts of the administrative work of the various chapters than those who have not been in position to become much interested in the administration of the Society or even in that of the local chapters.

G. A. M.

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Including Chapter Reports Received up to March 1, 1915

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QUARTER CENTURY RECORD AND HISTORY

According to the instructions given by the General Convention, a copy will be sent prepaid on receipt of \$2.50.

SIGMA XI QUARTERLY

Title Page and Table of Contents for Volume I or Volume II will be sent members or subscribers on request. A few extra copies of these volumes are to be had at the regular subscription price. Odd numbers will be sent members to fill gaps as long as the supply holds out.

PRINTED BLANKS

The General Convention has instructed the Secretary to keep for chapters a supply of printed blanks as enumerated below. According to instructions these are to be forwarded to chapters under the following stipulations:

Membership Certificates, stamped with the great seal of the Society. In packages of fifty prepaid, on advance payment of \$2.50 for each package.

Index Cards, on the condition that a duplicate set be sent for the general index of the Society maintained in the secretary's office. Gratis on demand.

Report Blanks, for submitting annual reports giving chapter officers, elections, and other statistical data. Gratis on demand.

SIGMA XI PUBLICATIONS

It has been proposed to bind up a number of sets of important early documents regarding Sigma Xi and to place a set in each of a selected series of the leading libraries of this country.

The undersigned will be glad to receive copies of such publications relating to the Society in general or to any one of its chapters which those interested may be able and willing to furnish for this purpose.

There are now ten imperfect sets on hand; can you aid in completing them or in making others?

HENRY B. WARD